

sunshine

TG's suggestions

THE MAGAZINE FOR TEENS
JANUARY- FEBRUARY 1976

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INDIA IN 2000 A.D.

sunshine

YOUTH MONTHLY WITH A WORLD VIEW
FOUNDED IN 1954

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PURPOSE

This Asian Youth Monthly is sponsored by the *Children's Sunshine Concerns*, a registered Non-profit educational Public Trust organized to ensure the all-round welfare of youth and to promote international understanding. SUNSHINE, founded in 1954, aims at fostering among boys and girls, 12-16, a democratic attitude, the service-above-self ideal, a sense of national unity and a world outlook. It also provides them with general knowledge, citizenship training, hints on efficiency and growing up, and appealing English language practice—all the pleasant way. It seeks to serve their age-equals abroad as a dependable bridge of friendship, and to meet the needs and interests of youth everywhere by giving them literature that is educative, edifying and entertaining.

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January-February 1976

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Due to the current difficulties with printing paper, we have been obliged to combine the January and February issues into a single, bumper number.

YOUR PART IN 1976

THE year ahead promises to be an exciting one for all Indians. 1976 is the first year of the last quarter of this century, and the manner in which India will meet the challenge of Population, Food and Employment during this time is being evolved now. When you readers are much older, you will look back to this year as one of the most important ones in your life, just as the Dandi March of 1930 or the Quit India movement of 1942 were important in your parents and grandparents' lives.

The Emergency of 1975 is being continued in 1976. The Prime Minister and her advisers have decided to postpone the elections which should have been held in February. In addition to presenting her Twenty Points (see page 33) as a target to her government, the P.M. has asked all the people to think about whether there should be changes made now in the Constitution and what the changes should be.

What are the main points of the debate about the Constitution? First let us put it in the right context. Since 1950 it has been the focus of the loyalty of all our citizens; a solemn Oath is taken by all Ministers and Governors to defend the Constitution.

The Constitution describes the way in which the people of India are to be served by the government they give themselves. The words of the American Declaration of Independence (which is 200 years old this year) express well the spirit of our Constitution: "We held these truths to be self-evident, that all men are created equal, that they are endowed by their Creator with certain inalienable Rights, that among these are Life, Liberty and the pursuit of Happiness. That to secure these rights, Governments are instituted among Men, deriving their just powers from the Consent of the governed"

The main purpose of any Constitution is to provide for orderly law-making and for faithful administration. In general, "government" is so much bigger and more powerful than the individual citizen, that various

checks and balances are provided to protect the citizen against unreasonable executive actions. This brings in the system of local and High Courts which have the power to arbitrate in disputes between one citizen and another, and between a citizen and the government. Except in the Communist countries and in dictatorships, it is arranged that the judges have the last word, and they cannot be sacked by the government.

The Assemblies or Parliament have a different purpose. When Members are elected, they are expected to keep their ear to the ground so that they know the feelings and needs of the constituency which elected them. All the Members will not have the same views on every subject. It is the function of the Assemblies to research each issue, to bring out in debate the different views, and eventually to find a compromise which is satisfactory to all. All taxes and expenditures are voted by the Parliament or Assemblies. They set up watch dog committees to check that the Administration is conducting government work efficiently for the purposes described in the laws they have passed.

The current debate about amending the Constitution asks whether checks, such as independent Courts, privately run newspapers and wide publicity to Assembly and Parliamentary debates, are required on the actions of a government which has a majority in the Parliament or Assembly. Some ministers and politicians feel that only when the Courts and the Newspapers stop criticising the actions of the government progress will be rapid. Others believe that since every human being or organisation can make mistakes, it is better that too much power is not given to any arm of government.

These are exciting times! To few generations is it given to be witness to such events in our history. Republic Day, January 26, is a good time to read, mark and think about these questions.

YOUR EDITOR

INDIA IN 2000 A.D.

WHEN we talk of the year 2000, engulfed as the country is in several known crises of minor and varied character, it may look odd that we are worried about the future. But the year 2000 A.D. is only 25 years away; 65 per cent of the Indian population—and almost everyone who reads this article—will be there to see the dawn of the twentyfirst century.

By 2001 India's population, which was 547 million in 1971, can be expected to double to 1100 million people. The requirements of energy for such a large population will depend on the likely growth of income which in turn will depend on the availability of energy. The limits of our present technological knowledge are such that to increase per capita productivity, man needs machines which need energy. Without energy, therefore, significant progress is not possible. This can be seen in the Table below which gives the per capita income and energy consumption in different countries.

Till the spread of education and practice of family planning stabilizes the population of the country, the first concern will be to feed the increasing population. Since the scope of expanding area under cultivation is negligible, massive efforts should be put in for intensive cultivation which will require irrigation, chemical fertilizers and pesticides. All these will call for the additional supply of energy.

Energy

The problem of energy in India must be viewed in the context of providing energy to the bulk of the population living in 500,000 villages. The rural population in India can be expected to grow from nearly 440 million in 1971 to around 700 to 800 million in 2001. Moreover, for the next 20

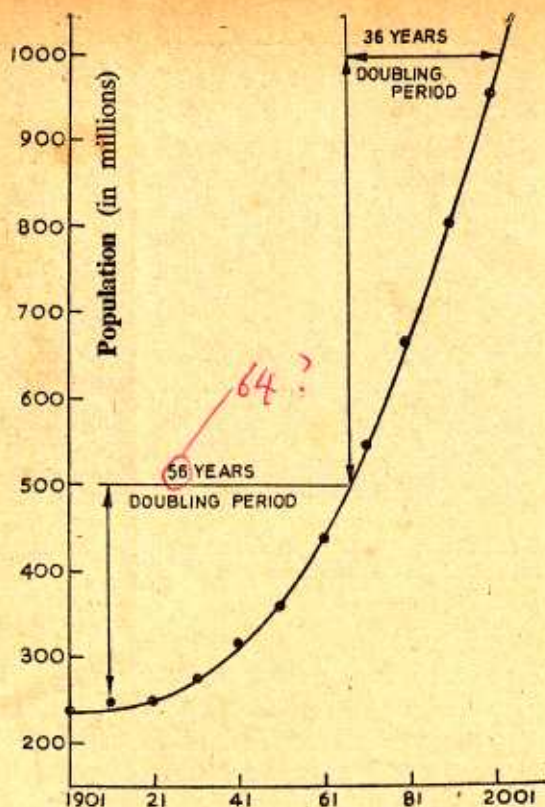
to 30 years the bulk of this population will be engaged in agricultural activity.

The pattern of living in the cities and towns of the world, whether in the developed or in the developing countries, has been determined by the abundant availability of cheap energy resources, mostly in the form of petroleum products. Thus, the vast massing together of inhabitants in big cities like New York or Tokyo or Bombay would not have been possible without the system of trucks bringing in food and other necessary items into the cities, and of the motor cars and trains which take the people to their places of work, often many tens of kilometres away from their homes.

So far as electric power itself is concerned, we will have to develop all available hydro-electric resources, coal-fired power at or near pit heads, and nuclear power in areas remote from coalfields. There will have to be a change in the development of giant cities that has been going on in an

ENERGY CONSUMPTION AND INCOME IN 10 COUNTRIES

COUNTRY	Energy consumption Per capita per annum (Kilogram of Coal Equivalent)	Per Capita Income (U. S. Dollars Per annum)
U. S. A.	11,128	4274
Canada	8,997	3214
Sweden	6,304	3695
U. K.	5,358	1993
W. Germany	5,151	2698
France	3,799	2606
Mexico	1,203	632
Iran	887	334
India	189	86
Nepal	14	80



unplanned manner in post-independent India. Industries must be spread around the country so that small and medium-size towns develop as opposed to large cities like Bombay, Calcutta or Madras. The large cities are particularly wasteful in energy consumption.

Even if this process of de-urbanisation was made compulsory, it would be justified when we look at the overall costs to society. It should be the aim that most persons who work in a factory or in an office are able to walk down to their places of work or at least able to reach it on a bicycle.

It is worth examining whether business and government transactions cannot be carried out with equal efficiency by the moving of information systems as opposed to moving people. Electronic communication is a remarkably low consumer of energy and can be an excellent substitute for the great amount of travel that is done in the present day. Also, we have not fully realised the value of human muscle power. It is perhaps

the most efficient source of power for travel, so long as the distances are not long, or for various other activities like lifting light loads or pushing hand carts.

Rural Social Future

What will happen in the villages? Can we forecast that by studying what is already happening?

Many important observation studies in Indian villages were conducted during the 1950's. Today, they are hopelessly outdated. There are visible changes in the traditional village culture. The village is fast becoming a different type of economic organisation, with a new social spirit. Soon, one suspects, there will be fewer differences between rural and urban lives. For instance, the higher and middle caste families—not directly related to agriculture and yet, till recently the pillars of the village establishment—are moving out of the villages. As a result, the village today increasingly consists of a population dependent more and more directly upon agriculture. Simultaneously, the centre of political power is now gradually shifting towards the low-status but majority caste—the agricultural castes.

Social status and leisure time is no more the privilege of just a few men. With the introduction of technological innovations, personal status is not so much linked with the status of the job a man does, which is in fact linked to the caste he belongs to. A new dignity has been given to jobs especially those which are economically profitable. Thus, it has become possible to create leisure for even the more deprived sectors of the rural population.

We are Trustees of the Future

The present generation of mankind should look upon itself as a trustee of future generations so far as the irreplaceable resources are concerned. The energy situation cannot be looked at in isolation and has to be

* (I would not accept this statement!)

'for God and Country'

IT WAS a 7 m by 4 m brick and mud-mortar structure with an asbestos roof now awaiting a mason for a coat of cement plaster. It was built by 22 boys of the Delhi St. Xavier's School and batches of girls from the nearby Holy Child School, working almost 12 hours a day for six days (Dusserah holidays) under the direction of their LTS master, Mr. Jose Paul.

It will be the home now of ten blind men, hitherto living in a 4 m by 2 m shack, going by the name of School and Institution for the Blind.

The programme is Leadership Training Service (LTS) and its motto: 'For God and Country'. What makes the programme unusual and distinctive, is the third of its declared objectives. "Personal formation", Personal formation is a carefully thought out stance on social responsibility and social justice, especially in the context of public schools in the Indian situation.

This objective is a deliberate attempt at exposing a young person to larger social realities. In other words, the future manager of affairs will gain experience of poverty and deprivation, in order that in later life he will not take undue advantage of his situation. He will be a man willing to give as much as he takes.

Started by Jesuit educationists over 16 years ago at Kurseong in the Darjeeling



LTS student-workers in front of the structure they built for a Blind School in Delhi.

District of West Bengal, it has now spread to most of the Public Schools in India. Reportedly, Father Wirth, S.J., of the St. Xavier's at Calcutta, the National Promoter of the LTS now, is actively campaigning for the adoption of the LTS by a larger number of schools in the country.

Mrs. R. D. Sain, who runs a homoeopathic dispensary in the vicinity of the Blind Institution, spends most of her time with the inmates of the institution. With great difficulty she had got a contract worth Rs. 7,000 for the blind inmates of the school to transcribe braille books. But with a sieve-like roof threatening to soak all the paper, she had been unable so far to start the work. Now that the LTS has given her wards a more reliable roof, they can begin.

It can be a soul-shattering experience for sheltered upper and middle-class school-children to come into active contact with their more unfortunate brothers and their setting. But it hardens them for the tasks ahead, for rebuilding more collapsed roofs. The Leadership Training Service, hopefully, will create a new generation, aware of its environment and equipped with broader shoulders, minds and hearts.



Starting our New Serial

SEVEN YEARS IN TIBET

by Heinrich Harrer

"All our dreams begin in youth. The goal of my ambition was to imitate the men who went out to explore new lands, or with toil and self-sacrifice fitted themselves to become champions in the field of sport, or perhaps even the conquerors of the great peaks."

Heinrich Harrer was born in Austria. He spent many long and arduous but exciting hours during his childhood, using the Alps as practise ground for mountain-climbing and ski-running. In 1936 he gained a place in the Austrian Olympic Team while still a teenager, and the next year was the winner of the Downhill Race in the World Students' Championship. But mere victory

over human rivals was not satisfying to him. For him, the only worthwhile ambition now was to measure his strength against the mountains. Soon he had mastered the toughest routes in the Alps. He was eager to take on the greatest mountains of them all—the Himalayas.

In the summer of 1939, he received the opportunity of a life-time—an invitation to take part in the German expedition to Nanga Parbat. His team mates were Chicken, Lobenhoffer and Aufschnaiter.

Read on to learn, in his own words, how it all came about and what thrilling and unique adventures it led to.

BY the end of August 1939 we had completed our reconnaissance. We had actually found a new way up Nanga Parbat and were now waiting in Karachi for the freighter which was to take us back to Europe. Our ship was long overdue and the war-clouds were growing ever denser.

A few days later England declared war on Germany. A few minutes after the declaration, twenty-five Indian soldiers armed to the teeth marched into a restaurant garden where we were sitting, to fetch us away. We were first taken to a transit camp, and a fortnight later transferred to the great internment camp at Ahmednagar near Bombay.

There we were quartered in crowded tents and huts in the midst of conflicting opinions and excited talk. "No," I thought, "this atmosphere is too different from the sunlight, lonely heights of the Himalayas. This is no life for freedom-loving men." So I

began to get busy looking for ways and means of escape.

Of course I was not the only one planning to get away. With the help of like-minded companions I collected compasses, money and maps which had been smuggled past the controls. But one day we were suddenly moved on a heavily guarded convoy of lorries to another camp in Deolali. Lobenhoffer and I, determined to make a gateway, took our seats at the back end of a lorry. Luckily for us the road was full of curves and we were often enveloped in thick clouds of dust—we saw this gave us a chance of jumping off unnoticed and vanishing into the jungle. We did not expect the guard in the lorry to spot us as he was obviously occupied in watching the lorry in front.

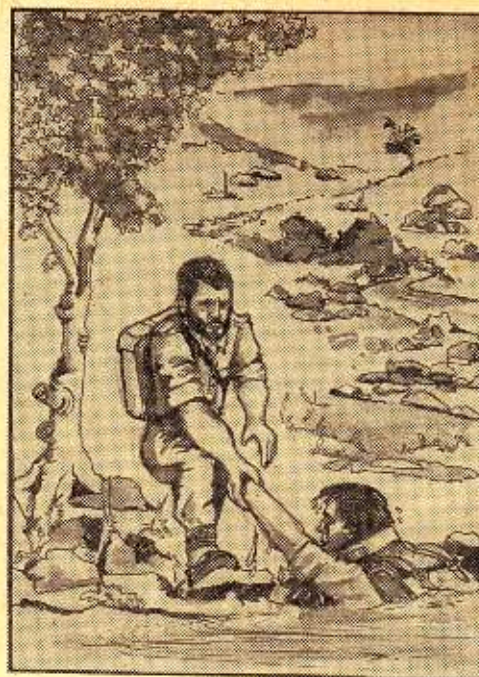
At last the moment came. We jumped off and I ran twenty yards off the road and threw myself down in a little hollow be-

hind a bush. Then to my horror the whole convoy stopped—I heard whistles and shooting and then, seeing the guard running over to the far side of the road, I had no doubt what had happened. Lobenhoffer must have been discovered and as he was carrying our rucksack with all our gear there was nothing for me to do but to give up my hopes of escape as well. Fortunately, I succeeded, in the confusion, in getting back into my seat without being noticed by any of the soldiers. Only my comrades knew that I had got away, and naturally they said nothing.

Then I saw Lobenhoffer: he was standing with his hands up facing a line of bayonets. I felt broken with the deadly disappointment of our failure. But my friend was really not to blame for it. He was carrying our heavy rucksack in his hand when he jumped off, and it seems that it made a clatter which was heard by the guard.

In the same year we were moved once more to the largest P.O.W. camp in India, a few miles outside the town of Dehra-Dun. It consisted of seven great sections each surrounded by a double fence of barbed wire. The whole camp was enclosed by two more lines of wire entanglement, between which patrols were constantly on the move.

Up here, we had the Himalayas right in front of us. How attractive to a mountaineer was the thought of getting away from the barbed wires and winning through to Tibet over the passes, and on to Burma or China. So, I set to work to learn a little Hindustani, Tibetan and Japanese; and devoured all sorts of travel books on Asia, which I found in the library. I made extracts from these works and took copies of the most important maps. Peter Aufchnaiter, my team-mate from the Nanga Parbat expedition who had also landed in Dehra-Dun, had various books and maps dealing with expeditions in Asia, and put all his notes and sketches at my disposal. Besides, every day I devoted several hours



to exercising in the open air, indifferent alike to bad and good weather, while at night I would lie out and study the habits of the guards who patrolled the camp.

I had originally intended to escape alone in order not to be hampered by a companion, but my chief worry was that I had little money. I soon, learned however, of an Italian general, Marchese by name, that had the same intentions of escaping as myself. What he needed was a partner familiar with the Himalayas. Fortunately for him he received the pay of a British General and money was no problem; so we teamed up—I was responsible for all the planning, and he for the money and equipment.

In May 1943 we had completed all our preparations. Money, provisions, compass, watches, shoes and a small mountaineer's tent were all ready. One night we decided to make the attempt. I climbed through the fence into Marchese's wing. There I found a ladder ready—we had grabbed and hidden it sometime earlier, after a small fire in the camp. We leaned it against the wall

of a hut and waited in the shadow. It was nearly midnight and we knew that in ten minutes the guard would change. The sentries, waiting to come off duty, walked slackly up and down. A few minutes passed until they reached the point where we wanted them. Just then the moon came up over the tops of the tea-plantation.

There we were. It was now or never.

Both the sentries had reached their farthest point from us. I got up from my crouching position and hurried to the fence with the ladder. I laid it against the overhanging top of the fence, climbed up, and cut the wires which had been bunched together to prevent access to the thatch. Marchese pushed the thicket of wires on to one side with a long forked stick, enabling me to slip through on to the roof. It was agreed that the Italian should follow me immediately, while I held the wire apart with my hands; but he did not come. He lingered for a few ghastly seconds thinking that it was too late and that the guards were already returning—and, indeed, I heard their steps. I left him no time for further reflection, but caught him under the arms and pulled him on to the roof. We crept across and dropped heavily down into freedom.

But all this had not happened in dead silence. The watch was alarmed and they started shooting; but as their firing broke the stillness of the night, we were swallowed up by the jungle. We ran for our lives and moved very fast, using short cuts which I had got to know very well during my outings from the camp. We decided to march by night so as to escape observation by daylight. I also stained my face and hands a dark shade to look like an Indian.

* * *

On the twelfth day of our flight, a great moment came. We found ourselves on the banks of the great Ganges. We would now follow the Pilgrims' Road up the Ganges to its sources. And that would gradually lessen the fatigues of our journey, or so we imagin-

ed. We decided that, having got so far and so safely by our system of night travel, we would not risk a change, so we continued to lie up by day and move by night. By this time I was carrying Marchese's rucksack as well as my own, for the strength of his body did not match his eagerness to escape. How thankful I was that the spartan regimen I followed in the camp had kept my muscles toned up.

Every evening Marchese marched heroically forward, and in spite of exhaustion caused by loss of weight he could carry on till midnight. After that he had to have two hours sleep to enable him to march a stage further. One day, towards morning we bivouacked, and from our shelter could look down on the great Pilgrims' Road with its almost unbroken stream of pilgrims. Lucky devils! How we envied the fact that they had no cause to hide from anyone.

Our next march was a long one, and towards midnight we reached Uttar Kashi, the temple town. As we progressed, the valley up which our way led us became less and less inhabited. In the daytime we had no trouble in finding suitable shelters, and I would often leave my hiding-place and go in search of water. Once I even made a small fire and cooked some porridge. It was the first hot meal we had eaten for a fortnight.

We had now already reached a height of nearly 7,000 feet. During the night we often passed camps of Bhutia—Tibetan traders.

* * *

One night we arrived at one of these Bhutia villages through which runs a swiftly running stream. Next morning in an attempt to cross it, Marchese fell into the water. Wet to the skin, and completely exhausted, I could not induce him to move on. He just spread out his wet things to dry and started to light a fire despite my frantic appeals to move, at least, into cover.

As we were arguing an Indian stood before us. Only then did Marchese realise what

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* Is this right? I've always understood
he calculated from the direct rays of the sun
striking into a deep well.



to the West!

MAPS AND MAP READING

HERE are many different kinds of maps. Some maps may show where the highest mountain ranges are. Others may show the location of cities, roads, and the great currents of the oceans. One map may suggest that people do not farm regular crops where the rainfall is less than 20 inches per year. Another map may show that steel mills are usually built near coal fields. Another, that great cities usually develop at ports and river crossings.

Every community uses maps to settle local problem. Businessmen need maps to show them good places to set up sales offices, and how to ship the goods. Aviation maps are necessary for safe flying. Maps are necessary tools for workers in all fields of natural resources and for all people who follow world events.

History of Maps

The Egyptians made maps as early as 1300 B.C., but the Greeks drew the first accurate maps. In the 500's B.C., the Greeks became the first people to recognize that the world was round, rather than flat. They even tried to calculate the distance round it. Most successful was Eratosthenes, born in 276 B.C. He lived in Alexandria at the mouth of the River Nile. By observing the difference in the length of shadows cast by the sun there and in Aswan, 500 miles to the South, he came to the conclusion that the earth was 25,000 miles around. This compares well with the distance as you know it, about 24,900 miles. The Romans used maps to set up taxation systems, and to plan military moves. In the A.D. 300's, they mapped a network of roads from southern England to the Ganges Valley in India. The most famous ancient maps were

made about A.D. 150 by Claudius Ptolemy, a Greek scholar. He mapped and described all the world that was known at that time.

World maps were begun in the 1400's. Prince Henry the Navigator, the ruler of Portugal, set up a school for sea captains and gathered together the best maps that could be found. Soon European sailors were discovering distant lands around the world. Christopher Columbus studied the best maps of his time before he set out on his great voyage. Ferdinand Magellan sailed around the world only thirty years later.

The next great step in mapping the world came about in the seventeenth century. Louis XIV of France was determined to make France famous for science. He persuaded famous men from different countries to come and work in his service. One of them was an Italian geographer-astronomer named Jean Cassini. For four generations, 122 years, the Cassinis were in charge of the Paris Observatory.

Cassini needed the latitude and longitude of each place in order to get their positions



right on the globes he made. Latitude was not difficult to find. It is the angle between straight overhead and the sun direction at noon. His remaining problem, then, was how to find longitude.

Look at any world map. Along the top of the map the lines of longitude are given their numbers—0, 30, 60 and so on, both east and west of Greenwich. Along the bottom of the map are usually marked the clock times, a.m. for morning and p.m. for afternoon. Can you see how many hours there are between different lines of longitude?

Cassini said to himself something like this, "If I knew that there were two hours difference between two places I should know they were 30 degrees of longitude apart. If I could only find the time at a place when the sun is overhead at Paris, I could therefore find its longitude."

But Cassini had no radio time, and no clock that would keep good time on the journey from Paris to other parts of the world to see how their sun time compared with his Paris time. Clockmakers had struggled for centuries to make better instruments mainly for this purpose.

Meanwhile, Cassini solved his problem when he found a "clock" that could be seen from places thousands of miles apart! He knew that Jupiter, one of the planets, has four moons that go round it. They can be seen with a telescope. Here was his heavenly clock. He set down the Paris times when the moons disappeared behind Jupiter and then appeared again. Men could now go to other places far away and get their local time from the sun, and Paris time from Jupiter. The differences between the two told them their longitude, 30 degrees for each two hours' difference.

Observations were made for Cassini in many parts of the world—in Egypt, Madagascar, South Africa, China, the West Indies and, of course, in France itself.

With exact latitudes and longitudes

known at certain places, better maps could be drawn. Jean Cassini and the French surveyors set about making maps as exact as humanly possible. The surveyors set out chain of triangles from one end of France to the other, fixing the positions of hill-tops, church towers and castle turrets. They marked the main stations on separate pieces of paper, and other surveyors took these papers and fixed the positions of scores of other points in between, until they had enough points to sketch in roads, mills, woods, streams, bridges and so on.

The first accurate surveying was started in 1668 by Jean Cassini and his co-workers. The final detailed map of France was brought out in 1789, over a hundred years

FORMS OF MAPS

The Globe: The globe presents the most nearly perfect picture of the earth. The oldest known world globe in existence was made by Martin Behaim in Nuremberg, Germany, in 1492. Only a globe can show all parts of the earth true to scale. Directions and distances can be given accurately, and ocean routes can be easily measured.

continued on p. 14

later, just after the death of his grandson Cesar, after whom it is often called. It was published in 180 sheets which, laid out flat together, make a map of France more than 10 yards square. The scale was almost exactly $\frac{3}{4}$ inch to the mile and it became one of the wonders of the world.

Maps — astronomy—navigation—mathematics—optics—clockmaking. Do you see why these fields have always been linked together in science and history? Today electronics, computers and telecommunications must be added to the tools of the navigator and the map-maker. . .

Read in our next issue all about the latest methods of making maps and also learn how you can make a real map. ❧❧❧

KINDS OF MAP PROJECTIONS

MERCATOR

Equal area
True direction
Great distortion near Poles



Unrolled



CONIC

Scale true where cone touches the globe

Shape and area have little distortion



Unrolled



LAMBERT'S CONFORMAL

Used for military maps
Very small distortion



Unrolled



POLYCONIC

Small distortion near Central Meridian
Used for large-scale topographic maps



The globe is the preferred map for many purposes. It is useful for planning air and sea routes and for radio communications. The best way to get an understanding of basic world geography is to study the globe.

Many of the globes in use are political globes. But a more useful type is the physical globe. The size of the globe, such as 6-inch or 12-inch, is the measure of the diameter and is the key to the scale of the globe. It has been shown that on a sixteen-inch globe, one inch equals 500 miles of distance. Even this globe is on a very small scale. Any attempt to show mountains and other relief features on the same scale is impossible.

Projections: Any showing on a flat surface of the globe's network of parallels and meridians is called a projection. It is not possible to draw a flat map of the earth without some kind of squeezing, stretching or tearing. It is like trying to flatten out half of a rubber ball. It will either wrinkle or crack. If only a very small area is shown on a map, the error is not important. But when large areas of the surface of

the earth are put onto flat maps, the areas nearer the poles will be greatly pulled out of shape, or distorted. Flat maps are always somewhat distorted.

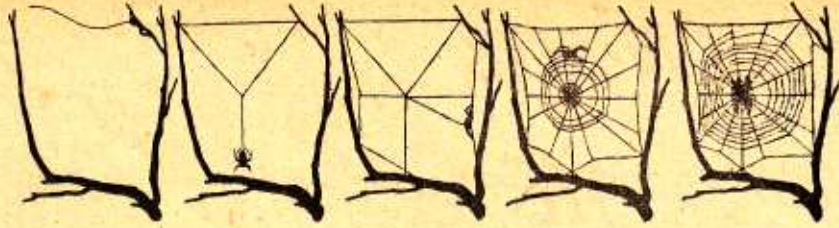
No projection on a flat surface can follow all these requirements. Some projections are better for one purpose than another. Certain requirements must be given up to gain others. It is important to realize that there is no one perfect map projection.

Mercator Projection: This type of map was invented by Gerhard Kremer, a geographer who used the Latinized name of Mercator. A group of Dutch merchants asked Mercator for an improved map to be used by their navigators at sea. Mercator finished his map in 1569.

The Mercator projection greatly distorts areas in the high latitudes. A glance at the globe shows that Greenland is about one eighth the size of South America. But on a Mercator map, Greenland appears even larger than South America because the meridians are laid out straight instead of approaching each other. Canada and other

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Nature's Master Builders



SPIDERS

HAVE you ever taken a walk in the woods and brushed aside a spider web? You may not have realized it, but you were destroying the work of a master builder.

You'll find busy spider architects wherever you go. They live on mountain peaks four miles above sea level. They live in tropical treetops, underground, and even underwater.

The spiders you see most often in your house or garden are web builders. Their skill sets them apart from other creatures, and has helped spiders survive for three hundred million years.

The spider's web serves as a home and a trap. Each spider species spins its own special type of web. But all are made from

Spiders have silk-producing glands inside their bodies. Tubes link the glands to little **spigot-like* openings on their bodies called spinnerets. Spiders use their legs to draw liquid silk out of the spinnerets. As the liquid is withdrawn, it quickly hardens into strong threads.

The glands, arranged in pairs, usually produce several kinds of threads. Some are dry; some, sticky. The finished web often includes a mixture of both. A spider avoids the sticky places as it moves around the web.

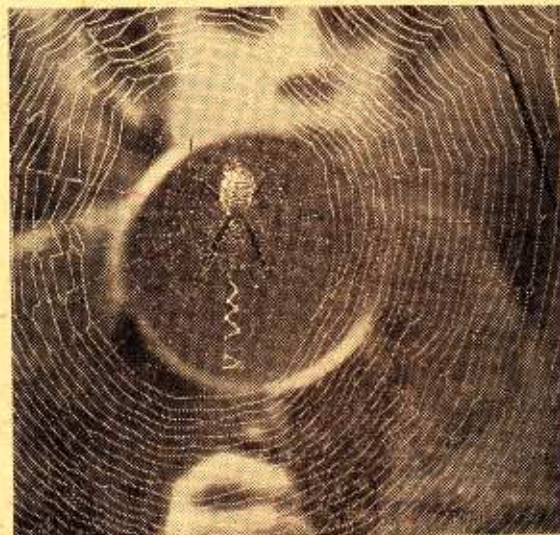
When an insect blunders into the trap, the spider feels its web shake. Then it moves in and bites the victim to paralyze it. Spider venom doesn't ordinarily harm humans, but it is deadly to small creatures.

The spider may quickly wrap its victim in silk and eat it for a quick snack. Some spiders might save the wrapped insects for later meals.

Of course, not all of the world's 30,000 known spider species construct webs. Some dig holes in the ground. Some live in old wood or hide in flowers. But all spin silk. They use it for egg cases, for lifelines when they swing through the air, and for many other purposes.

Most spiders begin spinning the moment they emerge from the egg case and continue all their lives. When they are spinning their silk homes, they do not always go around in circles, as is popularly thought, but spin mazes, tangles or even tent shapes.

If part of a web gets damaged, the spider might repair it. But even with the best of care, the fragile structures usually last no longer than a day or so. Then the spider must do the job all over again.

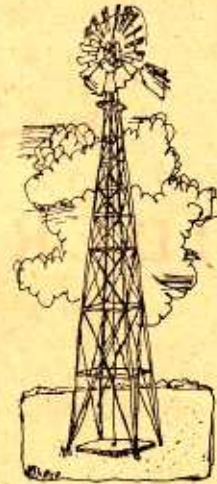


January-February 1976

** (explain meaning)*

(give caption)

Watts in The Wind?



TODAY, Wind Power enthusiasts—whose numbers grow with each increase in oil prices—believe that the answer to both Energy and Pollution may be “blow in the wind”.

Often overlooked in the search for alternatives to oil and coal is the natural ability of wind to trap solar energy. At any given moment, one billion cubic miles of the earth's atmosphere is exposed to the sun; an equal amount is in shadow. On a 24-hour cycle, this atmospheric heating and cooling transforms the biosphere into a huge heat engine that generates untold energy. One manifestation of this energy is the wind, another is clouds. And thus to capture the wind is to capture solar energy.

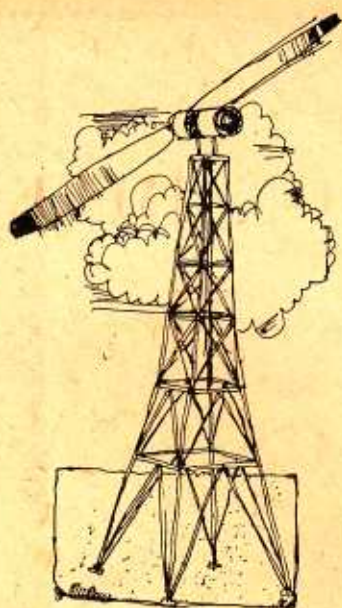
Estimates of the potential energy available above our heads are mind-boggling. Eight times as much wind power is available from a 30 mph wind as in a 15 mph wind because the amount of power increases by the cube of wind's speed! More recent estimates of available wind energy range as high as 80 trillion kilowatts in the Northern Hemisphere alone. To tap this awesome amount of free power, three separate methods are suggested.

1) *Small windmills for remote areas.* Between 1880 and 1930 more than six and half

million windmills were built in the U.S. About 175,000 of these are still there. (Originally they were used to lift water from underground. Later, in the 1920s, these mills provided flickering lights in countless farming areas where no electric service was available. But they suddenly became obsolete when cheap electricity was made available to farmers by the Rural Electrification Administration.)

Though energy from the wind may be free, the equipment to harness it is costly. Assume a 10-year life for storage batteries (for use on calm days) and a 20-year life for the wind generator. On that basis, power costs will be about Rs. 1.25 per kilowatt hour. Electric rates today run only Rs. 0.25-Rs. 0.40 per kilowatt hour. On the other hand, it costs at least Rs. 2 per kilowatt hour to produce electricity with a portable diesel engine generator.

2) *Medium-sized wind generators for small communities.* These vary from 15 to 100 kilowatts and do not require storage systems. Indeed, any over-production of energy on windy days is sold by the community to the state power grid. In return, the community can cash in its credit on calm days.
3) *Huge generators operated by electricity boards.* These massive windmills produce



significant amounts of power which are fed directly into the existing electrical grids. An excellent example is the famous giant windmill built in 1941 in Vermont in the U.S.A. The two-bladed propellor was 175 feet in diameter, cost one million dollars and produced up to 1,250 kilowatts for the Central Vermont Power Company. (A few months later, though, the giant mill was shut down for good when one of its eight-ton blades cracked and went spinning 750 feet through the Vermont skies.)

Sooner or later, however, every wind advocate must face the nagging storage problem. For the wind, indeed, is an errant friend and when it blows up a gale, its power must be stored for calmer periods. For the immediate future, the most practical solution is to evade the storage issue by coupling wind energy plants directly into the existing regional grid. In effect, then, wind power would always be on the line, supplying a base power for the entire system, with thermal plants filling in the gaps, and hydro-electric powered plants turned on only in peak periods.

There is also a proposition that existing hydro-electric dams be used as gigantic

"storage batteries". Any oversupplies of electricity from the windmills could be used to pump water up into reservoirs, from which the water can be released on calm days.

More exotic storage systems have also been suggested. One research institute has designed a large wind energy system in which surplus current would be used to pump air into an abandoned mine. On calm days, the compressed air would be released through gas turbines to produce electricity. Another system suggested is that in which electrical current from the offshore windmills would electrolyze sea water—separate it into its two elements, hydrogen and oxygen. The hydrogen could be stored in huge tanks on the ocean floor. Much of it could be converted back into electricity by fuel cells.

Large-scale wind-generator systems can be installed today for about Rs 3,000 to Rs 3,600 per installed kilowatt. This compares to a cost of about Rs 2,250 for gas-fired steam turbines and Rs 3,600 for coal plants with proper air pollution control equipment. We know, however, that the cost of our conventional power is expected to increase, whereas the cost of wind power after more research and trials will come down.

In spite of high costs and the difficulties of harnessing and storing its power, the wind continues to blow. According to a United Nations researcher, "weather statistics show that in most parts of the world there are only three days a month, on an average, without any wind at all." Also, winds not only are strongest during the day-time hours, but also during the winter months when electrical power is at its highest demand. Given these facts plus the idea that the winds could be supplying almost all of the energy demands of the world, maybe our scientists should be more willing to take windmills more seriously in the future?



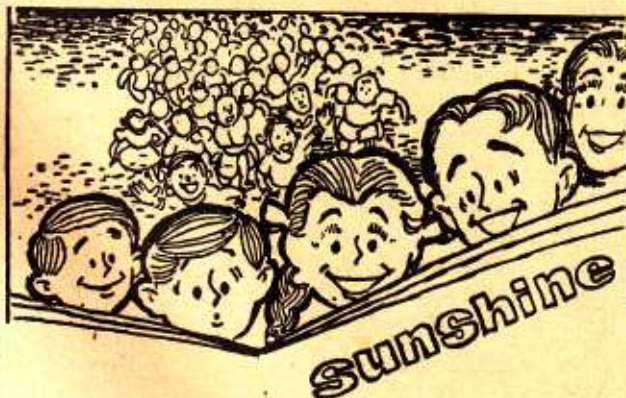
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FISH REVOLUTION IS COMING

Fisheries experts believe that new methods of raising larger number of fish could bring about a "fish revolution". The fish yield from small ponds could go up to 9,000 kg per hectare, which is over ten times the present 600 kg per hectare.

Fish are a major food resource in our country, especially as a rich source of proteins. They are also the staple food of large sections of people and an enjoyable delicacy to many others. In addition, finely ground 'fish meal' is used to feed poultry and other animals. There are about 8 lakh fishermen and many more employed in the allied industries like the making of nets and fish processing, manufacture of ice, transportation, etc.

The indirect economic benefits also extend to agriculture. For, "aquaculture" (breeding of fish and frogs) utilises byproducts of agriculture, like oilcakes, rice bran and wheat bran, and also cattle dung. The Central Inland Fisheries Research Institute in Bengal would like to make fish and frog cultivation the spare time activity of more and more farmers.

Student Inventiveness in Science Exhibition

Students from over 50 schools in Tamil Nadu displayed about 250 interesting items at the State Science exhibition at Madras recently. The exhibits and their variety revealed a high degree of ingenuity and craftsmanship in the students.

Students of one school devised what they called 'coconutronics'. They had used large coconut shells to make electronic gadgets and models! Then there was a 'Magic Chair' which

automatically switched on a radio, a fan and a light when anyone sat on the chair. An 'Automatic Road Lighter' illustrated how the street lights could come on automatically after sunset and ~~put~~ off at sunrise. In the demonstration, an electric lamp was focussed on a photo-electric cell, which worked a relay to which 'street lights' were connected. When the lamp, which symbolised the Sun, was on, the "street lights" were off, and they came on as soon as it was turned off. 90/

Other interesting items included a 'Jumping Jockey' worked on the principle of electromagnetism, an electric gadget for multiplication, a "Day Finder—1800 to 1999" and a model to explain the phases of the moon. There were many other items—a student-made radio transmitter/receiver, an amplifier, a walkie talkie, optical instruments, etc. All these gadgets were conceived and constructed by the students themselves; in some cases, their teachers guided them.

About 12,000 boys and girls visited the exhibition on the three days allotted to them.

Sun-n-Sea means More Food, Energy

Now there is a way of producing fresh water and power and more food from the sea! It sounds very simple: the temperature of the surface sea-water is first raised by means of solar heaters until steam is formed. This steam first drives turbines to generate electricity and, later, is condensed into fresh water!

Pure, cold water, drawn from the depths, is used to condense the steam. It will have brought up with it the nutrients that will be used to nourish sea-creatures like oysters, lobsters, clams, etc in artificial ponds on the shore. Capturing of solar heat to heat up the sea water will be done by covering the surface with black charcoal powder or graphite in ponds that have absorptive black bottoms.

The American professor who invented this scheme, believes that because of its multiple outputs, the process is economical and will yield profits of 20 to 30 per cent every year on the investment. In fact, it has already been adopted by a German company which is designing desalination plants for an Arab country. 2

Many schools in India nowadays are building solar water heaters. (See also SUNSHINE December 1975.) Is yours? If so, send us details.

Chifali's Good Fortune

CHIFALI's good fortune really started the day she went into Hari's second hand shop to buy a birthday present for her mother.

Mr. Hari's store, which was really more like a junk shop, contained every thing old, from used furniture and crockery to brassware and jewelry. The smaller items were scattered about in packing cases and boxes. Some were even stacked up in the window.

That was how Chifali happened to see the earrings. They were there in the window in a faded blue case. She passed them every morning on her way to school.

The first day she saw them, she started saving her pocket-money to buy them. And now, after five weeks, she had managed to save four rupees and fifty paise.

"I hope they won't cost more than that," she sighed, as she approached the shop.

A little bell tinkled when the door opened. Old Mr. Hari came in from the back room where he lived. He was leaning on his walking-stick.

He smiled at Chifali and asked, "What can I do for you?"

"I'd like to buy the earrings in the shop window. They're for my mother's birthday. How much do they cost, please?"

Mr. Hari went to the window and brought the earrings back to the counter.

"Four rupees", he said, holding them out for Chifali to see. "And they look like genuine gold."

"They're beautiful," said Chifali, "I'll polish them before I give them to mummy."

Since she had fifty paise left, Chifali looked around the shop to see if there was anything else she wanted to buy.

"Everything is so dusty", apologized Mr.

Hari, "that people can't see what I have. If I felt better, I'd clean and dust up this place. But I haven't had the strength. And I can't afford to hire some one to help me."

Chifali stared at Mr. Hari in astonishment. "Why, you don't need to hire anyone!" she exclaimed. "I'll be glad to help you. I can have everything spick and span in a short time. I'll come every afternoon after school. That is, every afternoon except Thursday. On Thursday afternoons I attend special drawing classes in school".

"Oh, my dear, would you?" asked Mr. Hari, his eyes glowing. "How old are you, dear?"

"I'm eleven," replied Chifali. "I've been helping my mother with the house work since I was eight. I'll start cleaning tomorrow afternoon."

She smiled at Mr. Hari, as she opened the door to leave. The bell rang again. Chifali thought to herself, "How friendly. It seems to say hello and good bye."

Chifali's mother nearly cried when Chifali gave her the earrings.

"Oh, Chifali," she said, "they're the loveliest things I've ever had. But you get such a little pocket money. You should have spent the money on yourself."

It was true. Chifali got only fifty paise a week. Chifali's father had died when she was a baby and her mother had had to earn their living. And since she had a great many expenses, there was never any extra money.

The next day, Chifali went to Mr. Hari's shop and dusted and re-arranged some of the things. She cleaned for nearly a week, washing and scrubbing, dusting and arranging before the shop took on a new look.



Then customers started coming in. The little bell chimed merrily.

"My goodness!" Mr. Hari exclaimed, "it's a miracle. I'm making more money than I ever dreamed I would. And I feel better too. Such nice, clean surroundings, and so many people stopping in to talk have chased my aches and pains away. You're a godsend, Chifali. You can have anything in this shop you wish in return for helping me.

It wasn't until she had almost finished dusting that Chifali saw something she wanted.

It was a small wooden doll. A lovely, exquisitely carved wooden doll whose face and hands seemed almost to speak.

She handled the doll carefully and gazed longingly at her.

"You like her, don't you?" Mr. Hari said, watching her. "Then take her for your own. I'm so glad you have found something that you like."

Chifali joyfully carried her home. She showed the doll to her mother who admired the delicate features. Then she took the doll to her room and placed her on the dressing table. There she could see her just

before she dropped off to sleep at night and the first thing when she awoke in the morning.

Chifali had been interested in all forms of art ever since she had started her special drawing classes, and began to read and learn more about the great artists. She loved to visit museums, now, and had often stood spellbound in front of the beautiful stone and wooden statues. "And now I have a 'statue' as beautiful as any of them," she thought happily.

The next Thursday, when Chifali went to her special drawing lesson, she took the doll to show to her teacher.

He handled it almost lovingly. "It's exquisite," he said. "Where did you get it?" Chifali explained about Mr. Hari's shop.

"May I show it to Mr. Desai, the curator of the museum?" he asked. He knows more about wooden statues than I do. I have a feeling that this is a very valuable piece of art." With Chifali's permission, he took it to Mr. Desai.

The next day, a very excited Mr. Desai came to talk to Chifali. She told him where and how she had got the doll.

"See here," said Mr. Desai, opening a very large and beautifully illustrated book that he had brought with him. He opened it at a page from which a similar statue looked out at them. "That statue resembles yours very much. It is a model of a princess that was created by a famous Portuguese artist in the fourteenth century. It is believed that he made over a hundred different models of the beautiful young princess with whom he was secretly in love, and by some strange chain of incidents, one of them seems to have found its way into Mr. Hari's shop.

"Your statue has the same master touch, and individualistic style. Some Portuguese General probably brought it to Goa in the 16th century at the time when Alburquerque conquered Goa." Mr. Desai was so excited, he could hardly contain himself. The doll

was a genuine master-piece. Chifali could hardly wait to tell her mother and Mr. Hari the good news.

"The doll is worth over ten thousand rupees," Mr. Desai later explained to Chifali and her mother. "Art treasures are often sold to art collectors or museums, and if you want this done with the Doll, I can arrange the details."

Chifali really did not want to part with her treasure. But she knew her mother could use the money it would bring.

"And Mr. Hari, too," she murmured. "He should have some of the money. The Doll was his in the first place. He didn't realize that he was giving away something so valuable."

Chifali and her mother went to see Mr. Hari. They wanted to talk over the matter with him.

"No," protested Mr. Hari. "I don't want any of the money that it brings. Chifali's help in the shop has given me more pleasure than I've had for a long time. It's no wonder she has such good fortune. She brings so much joy to others."

But Chifali and her mother would not listen to these excuses. It was finally agreed that the money the little Doll brought should be divided three ways. One third was to go to Mr. Hari, one third to Chifali's mother, and one third to Chifali to be saved for her education.

Chifali gazed longingly at her bare dressing-table the night after Mr. Desai took the little doll away.

Then she smiled. "Mr. Hari and Mother and I are all so much better off because of her. Mr. Hari will have extra money for special treats. Mother won't have to work so hard. And, some day, when I'm an artist, I'll create something that will delight all who see it, just as the Doll does."

Then closing her eyes, she drifted off to sleep. A pretty delicate face smiled through her dreams.



A QUIZ ON

FUEL and POWER

I. Arrange the following countries in the descending order of per capita consumption of electricity:

Japan, India, U.S.A., Norway, U.K.

II. At the present rate of production, how long, approximately, will the oil reserves in Iran last?

(a) 75 years (b) 20 years (c) 200 years

III. 1. Name two of the earliest pioneers of the steam engine. 2. In what industry was it first used?

IV. Name 3 countries which are best suited for harnessing solar energy. Why?

V. What is lignite? Where is it most produced in our country?

VI. 1. How is 'steam coal' different from ordinary coal? 2. What is special about 'coking coal' used in steel plants?

VII. The total installed generating capacity for electricity in our country was 19 lakh kilowatts in 1947. How much is it now, approximately?

(a) 54 lakh kw (b) 27 lakh kw (c) 200 lakh kw

VIII. What is gobar gas? For what can it be used?

IX. Give 2 examples of how wind power is put to use.

X. What do the following terms mean?

1. Megawatt 2. Horse Power 3. Turbine 4. Grid.

Send your answers to these questions on an independent sheet, mentioning clearly your name and SR Number. Up to 5 points will be awarded on merit.

Last Date: February 15



ANAGRAMS IN SPACE

Take all the letters of each pair of words and move them about to make new space-age words.

1. LITTLE + SEA = _____
2. TAMPER + HOSE = _____
3. TREK + CO = _____
4. ROB + IT = _____
5. ALP + TEN = _____

ASK ME ANOTHER

1. What do we catch but never hold?
2. What can never be taken out of a dish?
3. Why was 1964 a good year for frogs?
4. What race is never run?

PAPER FLOWERS

Try making these delicate flowers to brighten your home this holiday season and throughout the year.

1. Get three sheets of coloured tissue paper, cut to the size you wish.
2. Put all three sheets together, on top of each other.
3. Get a piece of wire and twist it around the middle of the tissue paper.
4. Pull the sheets up on each side so that they look like petals.



CITY CONTEST

1. What city is for few people?
(Answer—SCARCITY)
2. What city is for happy people?
3. What city is for truthful people?
4. What city is for wild beasts?
5. What city is for home lovers?
6. What city is for wise people?
7. What city is for nations?
8. What city is for old people?

ANIMAL OFFSPRINGS

You know that the young of dogs are called pups and of cats, kittens, but can you name the young of these animals?

1. bear 2. deer 3. eagle 4. elephant 5. fox
6. goat 7. goose 8. monkey 9. moose
10. frog 11. seal 12. swan 13. turkey
14. kangaroo.

OUT OF A STOCKING

Using only letters from the word "stocking" make words with the following meanings: 1. A small bed 2. Part of certain wheels 3. A monarch 4. Something to spend 5. A metal 6. Worn on a foot 7. A poem set to music 8. A symbol 9. To do wrong 10. Where dishes are washed.

GUESS HIS AGE

You can guess anybody's age provided he tells you how much change he has in his pocket. Use this procedure:

Give him a pencil and paper and ask him to (1) put down his age; (2) multiply it by 2; (3) add 5; (4) multiply it by 50; (5) subtract 365 from the number so obtained. Now ask him for the number as well as the amount of change he has in his pocket less than a rupee. To the number he tells you, add 115 plus the amount of change. Now if he hasn't made any mistakes in arithmetic, the first two digits of the number will be his age.

(Answers on page 36)

The Night the Ghost Got in

by James Thurber

THE ghost that got into our house on the night of 17 November, 1915 raised such a hullabaloo of misunderstandings that I am sorry I didn't just let it keep on walking, and go to bed.

They began about a quarter past one o'clock in the morning, a rhythmic walking around the dining-room table. My mother was asleep in one room upstairs, my brother Herman in another; grandfather was in the attic, in the old walnut bed which, as you will remember, once fell on my father. I had just stepped out of the bathtub and was busily rubbing myself with a towel when I heard the steps.

They were the steps of a man walking rapidly around the dining-room table downstairs. The steps kept going round and round and at regular intervals a board creaked, when it was trod upon. I supposed at first that it was my father or my brother Roy, who had gone to Indianapolis but were expected home at any time. I suspected next that it was a burglar. It did not enter my mind until later that it was a ghost.

After the walking had gone on for perhaps three minutes, I tiptoed to Herman's room. 'Psst!' I hissed, in the dark, shaking him. 'Awp,' he said, in a low hopeless tone. He always half-suspected that something would 'get him' in the night. I told him who I was. 'There's something downstairs!' I said. He got up and followed me to the head of the back staircase. We listened together. There was no sound. The steps had ceased. Herman looked at me in some alarm: I had only the bath towel around my waist. He wanted to go back to bed, but I gripped his arm. 'There's something down there!' I said. Instantly the steps began again,

circled the dining-room table like a man running, and started up the stairs towards us, heavily, two at a time. The light still shone palely down the stairs; we saw nothing coming; we only heard the steps. Herman rushed to his room and slammed the door. I slammed shut the door at the stairs top and held my knee against it. After a long minute, I slowly opened it again. There was nothing there. There was no sound. None of us ever heard the ghost again.

The slamming of the doors had aroused mother: she peered out of her room. 'What on earth are you boys doing?' she demanded. Herman ventured out of his room. 'Nothing,' he said, gruffly, but he was, in colour, a light green. 'What was all that running around downstairs?' said mother. So she had heard the steps, too! We just looked at her. 'Burglars!' she shouted intuitively. I tried to quiet her by starting lightly downstairs.

'Come on Herman,' I said.

'Don't either of you go a step,' said mother. 'We'll call the police.' Since the phone was downstairs, I didn't see how we were going to call the police, but mother made one of her quick, incomparable decisions. She flung open a window of her bedroom, which faced the bedroom windows of the house of a neighbour, picked up a shoe, and whammed it through a pane of glass across the narrow space that separated the two houses. Glass tinkled into the bedroom occupied by a retired engraver named Bodwell and his wife. Bodwell had been for some years in rather a bad way and was subject to mild 'attacks'. Most everybody we knew or lived near had some kind of attacks.

It was two o'clock of a moonless night;

Bodwell was at the window in a minute, shouting, frothing a little, shaking his fist. 'We'll sell the house and go back to Peoria,' we could hear Mrs. Bodwell saying. It was some time before mother 'got through' to Bodwell. 'Burglars!' she shouted. 'Burglars in the house!' Herman and I hadn't dared to tell her that it was not burglars but ghosts, for she was even more afraid of ghosts than of burglars. Bodwell at first thought that she meant there were burglars in his house, but finally he quieted down and called the police for us over an extension phone by his bed. After he had disappeared from the window, mother suddenly made as if to throw another shoe, not because there was further need of it but, as she later explained, because the thrill of heaving a shoe through a window glass had enormously taken her fancy. I prevented her.

The police arrived on motor-cycles, and a patrol wagon with about eight in it and a few reporters. 'Open up!' cried a hoarse voice. 'We're men from Headquarters!' I wanted to go down and let them in, but mother wouldn't hear of it. 'You haven't a stitch on,' she pointed out. 'You'd catch your death.' I wound the towel around me again. Finally the cops put their shoulders to our big heavy front door with its thick bevelled glass and broke it in: I could hear a rending of wood and a splash of glass on the floor of the hall. Their lights played all over the living-room and dining-room, stabbed into hallways, shot up the front stairs and finally up the back. They caught me standing in my towel at the top. A heavy policeman bounded up the steps. 'Who are you?' he demanded. 'I live here,' I said. 'Well, whattsa matta, ya hot?' he asked. It was, as a matter of fact, cold; I went to my room and pulled on some trousers. On my way out, a cop stuck a gun into my ribs. 'Whatta you doin' here?' he demanded. 'I live here,' I said.



The officer in charge reported to mother. 'No sign of nobody, lady,' he said. 'Musta got away—whatt'd he look like?' 'There were two or three of them,' mother said, 'whooping and carrying on and slamming doors.' 'Funny,' said the cop. 'All ya windows and doors was locked on the inside tight as a tick.'

Downstairs, we could hear the tromping of the other police. Drawers were yanked open, windows were shot up and pulled down, furniture fell with dull thumps. Upstairs, a half dozen policemen pulled beds away from walls, tore clothes off hooks in the closets, pulled suitcases and boxes off shelves.

'No sign o' nuthin', said the cop who had first spoken to mother. 'This guy,' he explained to the others, jerking a thumb at me, 'was nekked. The lady seems historical.' They all nodded, but said nothing; just looked at me. In the small silence we all heard a creaking in the attic. Grandfather was turning over in bed. 'What's at?' snapped Joe. Five or six cops sprang for the attic door before I could intervene or explain.

When I got to the attic, things were pretty confused. Grandfather had evidently jumped to the conclusion that the police were deserters from General Meade's army, trying to hide away in his attic. (He was going through a phase in which he believed all General Meade's men were beginning to

**(explain the reference)*

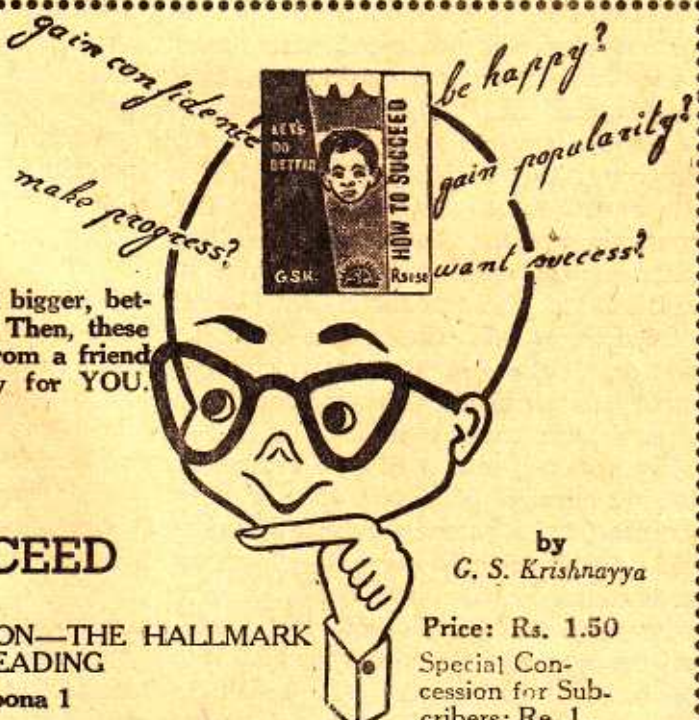
retreat and escape.) He bounded out of bed wearing a long flannel nightgown, a night-cap, and a leather jacket around his chest. 'Back, ye cowardly dogs! roared grandfather. 'Back t' the lines, ye lilylivered cattle!' With that, he grabbed a gun from a Policeman's holster and let fly. The report seemed to crack the rafters; smoke filled the attic. A cop cursed and shot his hand to his shoulder. Somehow, we all finally got downstairs again and locked the door against the old gentleman. He fired once or twice more in the darkness and then went back to bed. 'That was grandfather,' I explained to Joe, out of breath. 'He thinks you're deserters.' 'I'll say he does,' said Joe.

The cops were reluctant to leave without getting their hands on somebody besides grandfather; the night had been distinctly a defeat for them. Furthermore, something looked—and I can see their viewpoint—phony. They began to poke into things again. A reporter, a thin-faced, wispy man, came up to me. I had put on one of mother's

blouses, not being able to find anything else. The reporter looked at me with mingled suspicion and interest. 'Just what the hell is the real lowdown here, Bud?' he asked. I decided to be frank with him. 'We had ghosts,' I said. He gazed at me a long time as if I were a slot machine into which he had, without results, dropped a nickel. Then he walked away. The cops followed him, the one grandfather shot holding his now-banded arm, cursing and blaspheming.

'What was the matter with that one policeman?' mother asked, after they had gone. 'Grandfather shot him for being a deserter', I said. 'Of all things!' said mother. 'He was such a nice-looking young man.'

Grandfather was fresh as a daisy and full of jokes at breakfast next morning. We thought at first he had forgotten all about what had happened, but he hadn't. Over his third cup of coffee, he glared at Herman and me. 'What was the idea of all them cops tarryhootin' round the house last night?' he demanded. He had us there.



Want to succeed? ... and be a bigger, better and brighter person? Yes? Then, these warm, wise and witty words, from a friend of youth, are meant especially for YOU.

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G. S. Krishnayya

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*A Legend of the
Pawnee Indians*

Skidi and the Bears

FAR, far away, in the heart of the great continent of North America, is the state of Nebraska, which means 'flat water.'

This was the home of the Pawnee Indians, whose large earth-covered lodges were to be found along the banks of the great river. They were a strange and warlike tribe, and when they were not hunting bison, they were making war on neighbouring tribes. There was great hatred between the Sioux Indians and the Pawnees, and when the two tribes met in battle, no mercy was shown by either side. Often, when the Pawnee braves returned from fighting, they would do a strange dance called the 'bear dance' in which they copied the lumbering walk of the huge mountain bears which roamed the wooded slopes. The reason for it is seen clearly in a story which every squaw told her children. It was about Skidi, the brave who came to life.

Once upon a time a Pawnee Indian was walking through the woods when he heard a rustling noise among the trees. Thinking that he was being followed by an enemy, he immediately lay down behind a great cedar tree and drew his bow. He lay still, patiently waiting for his enemy to show himself, but no one appeared.

He raised himself cautiously and peered round the trunk of the tree. There to his amazement he saw the tiniest bear cub he

had ever seen. It looked so helpless that he could not find it in his heart to harm it. He picked it up gently and played with it for quite a time. Then he took some beads from his neck and placed them round the neck of the bear cub. 'I will not harm you,' he said. "We are both creatures of the Great Spirit, and may He be a witness between us, that as I have allowed you to go unhurt so may the bear people allow my children to go unhurt whenever they meet."

The bear cub sidled away into the forest, and the Pawnee made his way back to his lodge. He told his squaw about the incident, and very soon forgot all about it.

Many moons went by, and one day a little baby boy was born to the wife of the Pawnee. She loved him very dearly, and often prayed to the Great Spirit that he might be saved from the hands of the fierce Sioux tribe who were constantly raiding their lodges. Little Skidi, for that was his name, grew strong and sturdy. He was very clever at imitating the call of the birds, the cry of the prairie wolf, and particularly the grunt and growl of the mountain bear.

No one could imitate the growl and walk of the bear as well as little Skidi, and when he was performing in front of his admiring friends, his mother would remember the time when Skidi's father had placed some beads round the neck of the bear cub and allowed it to go away unharmed.

The years passed by all too quickly and Skidi grew up to take his place among the Pawnees as a fine warrior and hunter. His arrow was the swiftest and the surest, as he rode with the hunters after the herds of bison when food was short in the lodges of his people.

One day, when Skidi, along with other braves, was returning from a hunting expedition, they saw clouds of smoke coming

from the direction of their lodge. Old men, women and even babies lay dead, and anything that would burn had been set on fire. They did not need to be told that the Sioux had raided the lodge in their absence, and they made a solemn vow that they would avenge the massacre. Skidi's blood ran hot within him and, tired as he was, he led a party of braves towards the rocky hills where he knew the Sioux had their homes.

Perhaps his tiredness had made him careless, or perhaps his anger had made him forget his skill as a hunter, for sad to say, Skidi led his war party into the very heart of an ambush which the Sioux had set for them. There was a short sharp fight, but the handful of Pawnees were no match for the hundreds of Sioux around them, and before long Skidi and his warriors were lying dead among the rocks and boulders of the mountain slopes.

Now it happened that when the sounds of battle had died away, and all was still once more, a number of great bears came lumbering along, sniffing at the bodies of the slain. Among them was a she-bear which carried around her neck a necklace of beads. She sniffed at the body of Skidi and then speaking in bear language cried out, "This is my brother! His father spared my life when I was but a cub. Can we not bring him back to life?"

The bears gathered round the body of Skidi and then the bear chief spoke. "We must try to bring to life again the son of him who did not take the life of our child. It is a difficult task, but the Great Spirit of all creatures may give us the power to do it."

The bears then huddled over the body of Skidi and warmed him with their own bodies. The Great Spirit showed his mercy, and to the great delight of the bears they saw the young brave beginning to breathe. Gently they carried him to a cave in the mountains, and nursed him back to health. They brought him the honey of the wild bees, and strange herbs which could heal.

His spirit had been brought back from the land of the departed, and soon he was well and strong again.

Skidi, however, did not return to his tribe for quite a long time. He lived with the bears and learned their language. He grew wise in the ways of the bear people, and learned to love them for their wisdom, kindness and great strength. Much as he loved the bear people, however, the time came one day when he longed to see his own tribe once again. "I must go," he said, "to the lodges of my people who have mourned for me these many days. Yet I will come back, my beloved friends, and bring you gifts even as you deserve."

"We do not wish for gifts, O brother," replied the bear chief, "but you must visit us again, and we will wait for you where the shadows are long in the caves of the bear people."

Skidi took his leave, and sped swiftly down the wooded slopes, down through the glades of the evergreen trees till he reached the high plains and the banks of the great river. You can imagine the great surprise of the Pawnees, and the immense delight, when they saw Skidi striding towards them. There was much feasting and celebration at the return of their hero, and many were the wonderful tales he told them of the kindness and wisdom of the bears.

True to his promise, however Skidi returned one day to the bears and brought with him gifts of food and Indian treasures. The bear chief was delighted to see him, and before he took his departure for the last time, he hugged him with his mighty paws. "Go, my brother," he said, "and take with you the strength and fearlessness and wisdom of the bear people."

Once again Skidi returned to his people and became a great chief. He taught the Pawnees to honour and respect the bears, and he taught them, too, the bear dance which they performed on every important occasion.



DON BRADMAN

RIGHT from his boyhood days in Bowral, when he was a prolific scorer for his age, Donald's mind seems to have been set on records. As he entered senior cricket, he was watched with interest and curiosity at the nets. But if any players offered him advice on correct technique, Donald usually just nodded his head—as if to tell them to keep their orthodox techniques to themselves, for he was more interested in scoring than in techniques.

The secret of Bradman's phenomenal success as a batsman were his sharp eyesight which helped him to judge the ball perfectly, his fine footwork and correct timing. His ability to sight—and judge—the ball immediately after its delivery was a great advantage to him in footwork and timing which, in turn, helped in perfect stroke-making. When hooking the ball, for instance, he could get into position so quickly that he could hit the ball with a downward thrust of the bat, aiming towards square leg. His supple and strong wrists enabled him to control his stroke and punch the ball hard. On normal wickets, Bradman was a fluent player of all strokes. He wasn't particular about style; he was more interested in accuracy. The precision and the variety of his cuts were notable. He was adept at playing the ball 'off his body' (i.e., without shifting his feet) at all angles on the leg side. Besides, by virtue of his lithe build, he was a good runner between the wickets and he also possessed the stamina required for marathon innings. He wasn't a superman by any means; in fact, he was small-boned. But he had an athletic physique.



On top of these qualities, he developed intense concentration and a serious approach to the game. To the many who asked him with curiosity the real secret of his success in amassing so many runs and records, he protested, "I don't go after records; they just come after me." But once he confided a secret: he never allowed a century to go to his head. He would forget about it and start all over again. Similarly, after 200, on to 300!

The 'Bodyline' Challenge

That was an era of intense rivalry between England and Australia. Prior to the tour of Australia in 1932, England's captain, Douglas Jardine, consulted with his fast bowlers, Larwood, Bowes and Voce, on a strategy to reclaim the "ashes" the symbol of victory between the two nations. They decided upon a deadly bowling strategy, called 'Bodyline' bowling, to tame the Australian batsmen. They had Bradman especially in mind, of course. 'Bodyline' bowling consisted of short-pitched bumpers which rose dangerously high, combined with a cordon of 6 or 7 leg-side fielders who

(not a recognized "fast" bowler, I think)

stood in an arc near the wicket. Against this negative bowling, not only was it impossible to play the normal strokes freely but it was difficult even to survive! The leg-side fielders waited like hungry wolves, very close to the batsman, to snap up the ball from the meek stroke or snick that the batsman was bound to make sooner or later. The uneasy feeling that many fielders were waiting to pounce on him, while he had to get his head out of the way of the ball, was usually enough to unnerve the batsman.

Jardine's plan worked, literally, like a charm. Bradman was almost completely unsettled by this bowling. Not that he was not technically equipped to counter such bowling; it was more because of a psychological break-down. He seemed unable to make the necessary effort to evolve his own counter-strategy. Instead, he gave the impression of having given himself up to chance, playing at random such strokes as he was prompted to, on the spur of the moment. This was shocking in a batsman like Bradman. One who was gifted with such quick coordination of the eye, brain and foot, and so quick with the bat, could surely have hit up 50 runs in a few overs on any wicket against any bowlers before they could get the upper hand.

Against Difficult Bowling

Against the bodyline strategy, Bradman finally did evolve for himself a tennislike, cross-bat stroke which he employed quite successfully against the manageable bumpers. This was a stroke like the 'Pull', adapted to suit the situation of a packed legside field. With this stroke, using his forearm power, Bradman was able to swat the ball through the leg-side 'wolves'. Against the

*The elder Nawab of Pataudi (father of 'Tiger' Pataudi) was a member of this England team and he scored a century in the first Test. However, as a punishment for showing his disapproval of Jardine's unsportsmanlike policy, 'Pat' was benched after the second Test.

No. of Innings	Not out	Total Runs	Average	Centuries	Highest Score
Against England (1928 to 1948, 8 series)					
63	7	5028	89.8	12	334
Against West Indies (1930-31)					
6	—	447	74.5	2	223
Against South Africa (1931-32)					
5	1	806	201.5	4	299
Against India (1947-48)					
6	2	715	178.75	4	201
TOTAL:					
80	10	6996	99.94	29	334

'bodyline' team itself, for instance, he played a valuable innings of 103. n.o. (out of his team's total of 181) in the second Test. Playing for New South Wales against the same team, he batted brilliantly on a rain-affected, turning wicket to score 71 out of his team's total of 128.

Ruthless Approach

Bradman was very cautious and unrelenting, even ruthless, in his approach. Both as a batsman and as a captain, even when the final success was quite certain, he would never take it for granted and let up the play. You have seen that this quality was evident in his batting. As a captain, he could be ruthless even against a weak team. Even after his team battered a weak attack and built up a high score, he would not declare early. He also did not hesitate to employ aggressive bowling against meek tail-enders. In the 1948 tour of England, the Australian team captained by him remained undefeated throughout the tour, taking back the 'ashes' 4-0. But even in the last match of that tour, he was as serious as at the start of the tour!

Statistically-minded connoisseurs would be interested to know that, in spite of his many fabulous scores and records, there was one ground on which to the end of his days, Bradman somehow never could score a Test century: Old Trafford (England).

where is the *?

1975

(Answers to December quiz)

I. Match up the following events with their dates.

- | | |
|-------------|---|
| a. May 14 | 1. Emergency Proclaimed ... |
| b. May 16 | 2. A woman climbs Mt. Everest... |
| c. June 5 | 3. Janata Front wins Gujarat election |
| d. June 12 | 4. President Mujib assassinated ... |
| e. June 26 | 5. Apollo and Soyuz space craft are linked in space |
| f. July 17 | 6. Suez Canal reopened |
| g. Aug. 15 | 7. OPEC raises oil prices by 10% |
| h. Sept. 27 | 8. Sikkim becomes 22nd State |

1—e, 2—a, 3—d, 4—g, 5—f, 6—c, 7—h, 8—b.

II. Under the Emergency, some sections of the Constitution were suspended. Which were the most important ones?

The clauses of the Constitution enumerating the "Fundamental Rights" of the citizens were suspended for as long as the Emergency lasts. These clauses protected the right of a citizen to freedom of speech and publication, and the right to dispute in court the grounds of his detention. This ancient right, called 'habeas corpus' in Latin (meaning "produce the body"), means that a court can tell a government to produce the prisoner it is holding and to justify in public his imprisonment.

III. List the "20 points" of the Programme adopted by the Prime Minister since the Emergency.

1. Streamlined production, procurement and distribution of essential commodities. Strict economy in Government. 2. Agricultural land ceilings and speedier distribution of surplus land. 3. House sites for landless workers. 4. Bonded labour to be declared illegal. 5. Liquidation of rural indebtedness. Moratorium on debts from landless labourers, small farmers and artisans. 6. Review of laws on minimum agricultural wages. 7. Five million more hectares to be brought under irrigation. National programme for use of underground water. 8. An accelerated power programme. Super thermal stations under Central control. 9. New Development Plan for development of handloom sector. 10. Improvement in quality and supply of people's cloth. 11. Socialisation of urban land. Ceiling on ownership of vacant land and on plinth area of new



During the Emergency, strikes have been banned and production is up in many industries such as H.M.T.'s Watch Factory above.

houses. 12. Prevention of tax evasion. Deterrent punishment for economic offenders. 13. Confiscation of smugglers' properties. 14. Liberalisation of investment procedures. Action against misuse of import licences. 15. New schemes for workers' association in industry. 16. National Permit Scheme for road transport. 17. Income tax relief to middle class—exemption limit placed at Rs. 8000. 18. Essential commodities at controlled prices to students in hostels. 19. Books and stationery at controlled prices. 20. New apprenticeship scheme to enlarge employment and training, especially of weaker sections.

IV. Mention two of the steps taken by the Central Government, since the Emergency, to boost the economy.

1. Strikes in Industry and Commerce were banned. 2. The threat of raids by income tax officials led to more people and companies paying their taxes fully and on time. 3. Companies were relieved of the requirement to pay a bonus to their workers unless they made a profit. 4. Government officials thought to be inefficient were retired or suspended.

V. Which three groups conquered Mt. Everest in 1975?

1. A team of Japanese women, led by Mrs. Junko Tabei. 2. A Chinese team, said to include women, also scaled Mt. Everest, at about the same time, from the North. 3. Finally, a British team succeeded in tackling the mountain's South-West side, which had never been done before.

claimed to have

VI. Why were the following people or places in the news in 1975? 1. Mishra 2. Allahabad 3. Sakharov 4. Sriharikota 5. Rabin 6. Spanish Sahara 7. Shanti Bhushan 8. Angola 9. G. S. Dhillon

(1). Mr. L. N. Mishra, Union Railway Minister and Congress party leader, died in a bomb blast in Samastipur, Bihar on January 2. (2). The Allahabad High Court created a sensation in June by its verdict cancelling the 1971 election of the Prime Minister Mrs. Gandhi, because of some irregularities. (Subsequently the Supreme Court ruled that, as per the latest law, the election was quite valid). (3). Andrei Sakharov, the great Russian scientist had, for many years, been asking for freedom of speech and movement for Russians. He was awarded the 1975 Nobel Prize for Peace but was not allowed to go to Norway to receive it. (4). This is an island off the Andhra coast where India's space-rocket launching station is being built. (5). Yitzhak Rabin is Israel's Prime Minister. An agreement between Israel and Egypt about the Suez Canal and Sinai was signed on September 3. (6). A territory along the north-west coast of Africa, which the Spanish government was handing over to Morocco and Mauritania.

It is rich in minerals, and some local people as well as neighbouring Algeria are unhappy about the Moroccan take-over. (7). He was the lawyer who fought the election case against the Prime Minister on behalf of Mr. Raj Narain, M.P. (8). This former Portuguese territory in south-west Africa became independent in November 1975. A civil war followed because the USSR and Cuba gave military help to one Angolan faction, while the USA & S. Africa helped the other faction. (9). Formerly the Speaker (i.e., Chairman) of the Lok Sabha, he was appointed a Union Minister in December when Sardar Swaran Singh resigned. There is no other Sikh in the Cabinet.

VII. How did the cost of living change between November 1, 1974 and November 1, 1975? (1 Down 20% 2. Down 10% 3. Steady 4. Up 10% 5. Up 20%). Why?

Raw materials were up, but because of the good monsoon and excellent harvests in 1975, the consumer index was down by just under 10%.

VIII. Who won the following tournaments in 1975?

Ranji, Durand, Aga Khan, Duleep, Deodhar. 1. Bombay 2. Mohun Bagan (Calcutta) 3. Northern Railway 4. South Zone 5. West Zone.

14 MAP PROJECTIONS

northern areas are much too large. Many wrong ideas about geography can be traced to the use of the Mercator projection.

But the Mercator projection was designed to help a navigator follow his course. It is a very valuable map for this purpose today. A straight line which crosses the vertical meridians cuts them all at the same angle. The navigator draws a straight line from his point of departure to the point he is sailing for. He reads the angle from the map and sets his course accordingly.

Conic Projections: A good projection for showing a single continent is the *conic* or *polyconic*. The conic projection is made as if a cone were laid over the globe, and touched it along some line of latitude. For the United States 35° north latitude is considered the best. On the Mercator map the parallels are straight lines. On the conic they are curved lines. On a map of the United States, Maine appears farther north

than any other part of the country. But a close study of the 50°N latitude parallel will show that Minnesota has a point which is still farther north. A conic map has its greatest accuracy along the 35° latitude line.

Lambert's Conformal Conic Projection: This type of map was invented by a German mathematician named Johann Lambert. It is often used for military purposes. It was used to map the Western Front during World War I and is the present basis of the United States sectional aeronautical charts.

The meridians are converging straight lines and are spaced truly on two parallels. All the parallels are sections of the centric circles (circles placed one within another and having a common centre) The parallels are spaced so that small areas are true to shape on the globe. This projection is very accurate for maps of areas of small, north-south extent. The amount of error is very small.



11 SEVEN YEARS IN TIBET

danger we were in. He quickly put his things together, but we had hardly gone a couple of steps when we were stopped by another Indian, a distinguished-looking fellow leading a section of ten strapping soldiers. In perfect English he asked for our passes. We affected not to understand and said we were pilgrims from Kashmir. There were, he said, two Kashmiris in the neighbouring house and if we could make them understand us, we would be free to go our way. What devilish ill-luck had brought two Kashmiris into the neighbourhood just at that moment! I had only used this alibi because it was the most unlikely thing to find Kashmiris in this region.

The two men of whom he spoke were flood-damage experts, who had been called in from Kashmir. As we had agreed to do in such a case, I began to speak to Marchese in French. Immediately the Indian broke in, speaking also in French, and told us to open our packs. (As luck would have it, the officer had studied Forestry in France and Germany). When he saw my English-Tibetan grammar he said that we might just as well tell him who we were. So we admitted that we were escaped prisoners but did not give away our nationality.

Soon after we were sitting in a comfortable room drinking tea and feeling bitterly disappointed. This was the eighteenth day of our flight and all our privations and efforts had gone for nothing. All the same, I did not for a minute doubt that I would escape again. Marchese, however, was in a condition of such complete exhaustion that he had given up all ideas of another attempt, and in a very comradely manner he made over to me the greater part of his money, knowing how short I was of cash. I now ate hearty meals since the forest officer's cook kept us continuously supplied with food, half of which I tucked away in my knapsack.

Early in the evening we said we were very tired and wanted to sleep. Our bedroom door was locked on the outside and the forest officer had his bed put on the veranda in front of our window to prevent any attempt at escape that way. However, he was away for a short while, so Marchese and I took the opportunity to start a mock quarrel. Marchese took both parts, so to speak. He shouted abuse in a high and then a low key, while I swung myself through the window, rucksack and all, on to the forest-officer's bed, and ran to the end of the veranda. Darkness had fallen, and after waiting a few seconds till the sentries had vanished round the corner of the house, I dropped down twelve feet to the ground below. The soil into which I fell was not hard and I made little noise; in a moment I was up and over the garden wall and had vanished into the pitch-black forest.

I was free.



ANSWERS TO PUZZLES

CITY CONTEST

1. Scarcity 2. Felicity 3. Veracity 4. Ferocity
5. Domesticity 6. Sagacity 7. Reciprocity 8. Eccentricity.

ANIMAL OFFSPRINGS

1. cub 2. fawn 3. eaglet 4. calf 5. cub, kit 6. kid
7. gosling 8. baby 9. calf 10. tadpole 11. pup
12. cygnet 13. poult 14. joey.

OUT OF A STOCKING

1. Cot 2. Cog 3. King...4. Coin 5. Tin 6. Sock
7. Song 8. Sign 9. Sin 10. Sink
cart; area; real; tale. meat; each; ache; them.

ANAGRAMS IN SPACE

1. Satellite. 2. Atmosphere. 3. Rocket. 4. Orbit
5. Planet.

ASK ME ANOTHER

1. A cold 2. A crack 3. Because it was a Leap Year. 4. A walking race

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7 INDIA IN 2000 A.D.

viewed as part of a whole system consisting of urban and rural life styles, pattern of industries and services, farming practices, methods of transportation, types of building construction, town planning and such other factors.

It is clear however, that we would have to utilise technology at two levels simultaneously in many activities. For instance we would have to use animal power on the farm and for rural transport of goods, while at the same time using electric traction on the railways. Similarly, we have to use gobar as domestic fuel in the villages while turning increasingly to nuclear energy as a source of electric power. We must find out improved methods of putting to use solar energy and wind power, and at the same time carry out research and development for harvesting fusion energy. The history of technology over the last fifty years has been that the latest technology generally displaces the earlier technology. We will

have to abandon this approach and look upon the old and new technologies as complementary to each other, and use them in a wise combination. *(To be Continued)*

SUNSHINE-CAMEL COLOUR CONTEST (November 1975) PRIZE WINNERS

1st Prize: *Deepika Wali*, Bombay
2nd Prize: *Lorraine Carvalho*, Bombay
3rd Prize: *Baliga A. Vineeth*, Bombay

5 Camel Consolation Prizes:

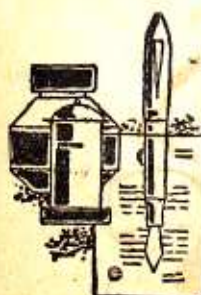
Aniruddha Das, Berhampore; *Milan Chatterjee*, Bhilai; *S. D. Khurshid*, Jamshedpur; *Kiran Bir*, Bangalore; *Hamidunnisa*, Bangalore.

10 Camel Certificates:

Kalavathi, Bombay; *Suddhasatwa Roy*, Jamshedpur; *Ajay B. Pasari*, Dulia; *Sandeep Sen*, Bhilai; *Shakib Aziz Raiba*, Bombay; *Prafulla Jacob*, Bombay; *K. N. Shashidhar*, Poona; *Vinayak S. Kulkarni*, Hubli; *Dinesh Choudhary*, Jamshedpur; *Richard Fernandes*, Bombay.

5 Sunshine Consolation Prizes:

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Winston Churchill often told about a man who waited one bitter, cold night for a Londonbound train. Due to some emergency, a nonstop express train halted briefly and the man climbed aboard.

"You can't get on," yelled the conductor. "This train doesn't stop here".

"Very well," replied the man calmly. "If it doesn't stop here, I'm not on it."

* * *

Recently, a small girl walked boldly up to a great concert pianist as he was leaving the concert hall here he had given a brilliant performance.

"May I have your autograph?" she asked pointedly.

"No, dear," he answered rather curtly, "my hands are extremely tired from playing."

"And my hands are tired, too," she beamed, "they're tired from applauding."

She got his autograph!

* * *

"Now, children," smiled the First Standard teacher. "I want you to be so still that you can hear a pin drop."

After silence for a very long thirty seconds, a young one in the corner yelled, "Okay, let it drop!"

* * *

"The horse you sold me last week is a fine animal, but I can't get him to hold his head up."

"Oh, it's because of his pride. He'll hold it up as soon as he's paid for."

* * *

A scoutmaster, after several new recruits at their attempts at outdoor cooking, asked, "How are you managing, lads? Have you forgotten any essential equipment?"

"Yes, I have Sir," answered one of the scouts.

"Oh, what?"

"My mother."

* * *

A little boy was gazing into the bed at his new baby sister who was lying there crying loudly.

"Did she come from Heaven?" the lad asked his mother.

"Yes," said the mother tenderly, "she did."

"Well, with all that noise she's making," said the little boy, "It's no wonder they threw her out."

* * *

"That fellow's the laziest man I've ever seen. He's been sitting on the rock for two hours doing nothing . . ."

"How do you know?"

"I've been sitting here and watching him."

* * *

"Just what good have you done for humanity?" asked the judge before passing sentence on the pickpocket.

"Well," replied the confirmed criminal thoughtfully, "I've kept three or four detectives working regularly."

* * *

On a crowded bus a woman said rather loudly, "I wish that good-looking man would give me his seat." Immediately five men stood up.

* * *

Teacher: Vinay, can you tell me the difference between perseverance and obstinacy?

Vinay: One's a strong will, the other's a strong won't.

* * *

POINTS WINNERS

(November '75)

HOW WELL HAVE YOU READ THIS ISSUE?

2 Points: A. Venkatraman 1808, Milind Rajadhyaksha 2394

1 Point: Leonardo D'Souza 2003, Cyprian Silva 9205, V. Shankar 7473, Ravindra Cavale 1690, Sunil Chopra 9720, Harveen Anand 4760/26, Ashalata D. Pujary 9366, Sheela Lakhmanan 1965, G. Suresh 9890, Atul P. Naik 2840, Dharti R. Raghunath 2711, Ajay S. Vidrohi 4121/70, Neeta Pasrija 2913

QUIZ ON REVOLUTIONS

2 Points: Sunil Chopra 9720, Cyprian Silva 9205, Neeta Pasrija 2913,

1 Point: P. Bobby George 8009, Felix Mascarenhas, Leonardo D'Souza 2003, Mita Chatterjee 8756, Sudesh Sharma 9838, W. Dickson Prem Kumar 8610.

POINTS WINNERS

(December '75)

A QUIZ ON 1975

4 Points: Mita Chatterjee 8756, Leonardo D'Souza 2003, Sumit Roy 977/6

3 Points: Giri Swaminathan 2364, Pinaki Roy 4585/1, Sunita Krishnamoorthy 3417/299, C. S. Balakrishnan 9742, Cyprian Silva 9205, N. Anand 2526, G. Sri Krishna 9524, Probir Saha 4585.

2 Points: M. Thangavel 2850, Moses Isaac Pezeker 1422, Ashok B. Raj 9807, P. Bobby George 8009, Sunil Chopra 9720, Atul P. Naik 2840, Gazala Rahman 9877/2, Meet Singh 9877/1.

1 Point: Felix Mascarenhas 9800, D. Victor Sunder Raj 8811, Carey Mascarenhas 2843, Sudesh Kumar 9838.

HOW WELL HAVE YOU READ THIS ISSUE?

2 Points: D. Victor Sunder Raj 8811, Sumit Ray 977/6.

1 Point: Leonardo D'Souza 2003, Atul Naik 2840, Felix Mascarenhas 9800, T. Kamakaraju 9831, M. S. Balakumar 2964, Pinaki Roy 4585/1, D. Ramesh Raghunath 2711, Probir Saha 4585, P. Bobby George 8009, Parag P. Shah 2940, Sunil Chopra 9720, Sudesh Sharma 9838.

HOW WELL HAVE YOU READ THIS ISSUE?

State whether the following are 'true' or 'false', giving reasons for 'false' statements. Send your answers to "Contests, Sunshine, Poona 1". The entry should be on an independent sheet, mentioning clearly name and SR Number. 2 Points for correct entries, 1 Point for one-error entries. Last Date: February 15.

1. The LTS programme develops leadership by training students in debating and public speaking.
2. The time when the sun is overhead determines the longitude of any place.
3. Greek scientists knew that the earth was round.
4. A spider's liquid silk is contained in a small sac situated on its legs.
5. Windmills can produce electric power at about Rs. 1.25 per kilowatt-hour.
6. Don Bradman was, by temperament, a carefree player.
7. The agricultural castes

will grow greatly in their social status and political power in rural areas by 2000 A.D.

8. By 2000 A. D. it may be necessary to break up big cities so that people can walk or bicycle to work.

9. Fishing and fisheries can be profitable even far away from the sea.

10. Changes are likely to be made to the Constitution during the present emergency.

LAST MONTH'S QUIZ

1. False (They were made only on good or normal wickets.) 2.

- True. 3. True. 4. True. 5. False. (The initial cost is higher.) 6. True. 7. False. (He raised their awareness of their own inner strength and courage.) 8. True.

CLOSING THOUGHT

Fear less, hope more,
eat less, chew more;
talk less, say more;
hate less, love more;
and all good things
are yours.

(Swedish Proverb)



RAM & SHYAM FIND ALLADIN'S LAMP



To Chor Bazaar our heroes go
Many a bargain they see on show



An antique lamp catches
their eye. So unique that
they soon do buy.



They rub the lamp
and give a shout, Lots
of smoke comes swirling out



"Hey Ram wow, can you
see, It looks like
Alladin's genii?"



"What's your wish,
oh my master
I'll grant it
quick if not faster"



"For gold or silver
we have no greed, A crate
of Poppins will fill our need"



Lo and behold, a crate so tall
A merry time
was had by all!



LICKABLE LIKEABLE LOVABLE

PARLE POPPINS

FRUITY SWEETS

5 FRUITY FLAVOURS—
RASPBERRY, PINEAPPLE,
LEMON, ORANGE AND LIME

